

**Amendments to the Claims:**

This listing of claims will replace all prior listings of claims in the application.

**Listing Of Claims:**

**Claim 1. (currently amended):** An illumination apparatus comprising:  
an inner-surface reflecting type integrator;  
an optical system for directing a beam from a light source to a portion of incidence of said inner-surface reflecting type integrator;  
an wave-front splitting type integrator;  
an image-forming optical system for arranging ~~the~~ a portion of incidence exit of said inner-surface reflecting type integrator approximately conjugate with a portion of incidence of said wave-front splitting type integrator, and for directing a beam from ~~said beam mixer~~ said inner-surface reflecting type integrator to said wave-front splitting type integrator; and  
an irradiating optical system for superimposing multiple beams from said wave-front splitting type integrator on a plane to be irradiated,  
wherein a stop is provided at or near the portion of exit of said inner-surface reflecting type integrator.

**Claim 2. (original):** An illumination apparatus according to claim 1, wherein said inner-surface reflecting optical integrator reflects at least a part of incident light with an internal surface of said inner-surface reflecting optical integrator, and for forming a surface light source on or near the plane of exit of said inner-surface reflecting optical integrator.

**Claim 3. (original):** An illumination apparatus according to claim 1, wherein said wave-front splitting type integrator is a lens array for splitting a wave front of incident light, and

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for forming multiple secondary light sources on or near the portion of exit of said wave-front splitting type integrator.

**Claim 4. (original):** An illumination apparatus according to claim 1, wherein said stop is a mechanical aperture stop.

**Claim 5. (original):** An illumination apparatus according to claim 1, wherein said stop is made of a light shielding material applied onto the portion of exit of said inner-surface reflecting type integrator.

**Claim 6. (original):** An illumination apparatus according to claim 1, wherein said stop is made of a multi-layer film vapor-deposited onto the portion of exit of said inner-surface reflecting type integrator.

**Claim 7. (original):** An illumination apparatus according to claim 1, wherein said stop is made of a metallic film vapor-deposited onto the portion of exit of said inner-surface reflecting type integrator.

**Claim 8. (previously presented):** An illumination apparatus according to claim 1, wherein said image-forming system is a zoom optical system.

**Claim 9. (previously presented):** An illumination apparatus according to claim 1, wherein the portion of exit of said inner-surface reflecting type integrator has a polygonal shape, and said stop has an aperture for correcting σ anisotropy.

**Claim 10. (original):** An illumination apparatus according to claim 9, wherein said stop has an approximately circular aperture.

**Claim 11. (canceled),**

**Claim 12. (currently amended):** An illumination apparatus comprising;

an inner-surface reflecting type integrator including a portion of exit with an n-gonal shape where n is a natural number;

a wave-front splitting type integrator;

a zoom optical system for arranging a portion of exit of said inner-surface reflecting type integrator approximately conjugate with a portion of incidence of said wave-front splitting type integrator, and for projecting an image of the portion of exit of said inner-surface reflecting type integrator[[,]] onto [[a]] the portion of incidence of said wave-front splitting integrator; and

an irradiating optical system for superimposing multiple beams from said wave-front splitting integrator on a plane to be irradiated,

wherein a stop having an approximately circular aperture is provided at or near the portion of exit of said inner-surface reflecting type integrator.

**Claim 13. (canceled).**

**Claim 14. (currently amended).** A projection exposure apparatus comprising:

an illumination apparatus for illuminating a mask located on a plane to be illuminated;

and

a projection optical system for projecting a pattern on said mask onto a wafer,

wherein said illumination apparatus comprising:

an inner-surface reflecting type integrator;

an optical system for directing a beam from a light source to a portion of incidence of said inner-surface reflecting type integrator;

[[an]] a wave-front splitting type integrator;

an image-forming optical system for arranging [[the]] a portion of incidence exit of said inner-surface reflecting type integrator approximately conjugate with a portion of incidence of

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said wave-front splitting type integrator, and for directing a beam from ~~said beam mixer said~~

inner-surface reflecting type integrator to said wave-front splitting type integrator; and

an irradiating optical system for superimposing multiple beams from said wave-front splitting type integrator on a plane to be irradiated,

wherein a stop is provided at or near the portion of exit of said inner-surface reflecting type integrator.

**Claim 15. (currently amended):** A projection exposure apparatus comprising:

an illumination apparatus for illuminating a mask located on a portion to be illuminated;

and

a projection optical system for projecting a pattern on said mask onto a wafer,

wherein said illumination apparatus comprising:

an inner-surface reflecting type integrator including a portion of exit with an n-gonal shape where n is a natural number;

a wave-front splitting type integrator;

a zoom optical system for arranging a portion of exit of said inner-surface reflecting type integrator approximately conjugate with a portion of incidence of said wave-front splitting type integrator, and for projecting an image of the portion of exit of said inner-surface reflecting type integrator[.] onto [[a]] the portion of incidence of said wave-front splitting integrator; and

an irradiating optical system for superimposing multiple beams from said wave-front splitting integrator on a plane to be irradiated, wherein a stop having an approximately circular aperture is provided at or near the portion of exit of said inner-surface reflecting type integrator.

**Claim 16. (canceled):**

**Claim 17. (currently amended):** A device fabrication method comprising the steps of:

projecting a pattern on a mask onto a wafer by using a projection exposure apparatus; and developing said wafer to which said pattern was transferred,

wherein said projection exposure apparatus comprising:

an illumination apparatus for illuminating a mask located on a plane to be illuminated;

and

a projection optical system for projecting a pattern on said mask onto a wafer,

wherein said illumination apparatus comprising:

an inner-surface reflecting type integrator;

an optical system for directing a beam from a light source to [[a]] the portion of incidence exit of said inner-surface reflecting type integrator;

an wave-front splitting type integrator;

an image-forming optical system for arranging the portion of incidence of said inner-surface reflecting type integrator approximately conjugate with a portion of incidence of said wave-front splitting type integrator, and for directing a beam from ~~said beam mixer~~ said inner-surface reflecting type integrator to said wave-front splitting type integrator; and

an irradiating optical system for superimposing multiple beams from said wave-front splitting type integrator on a plane to be irradiated, wherein a stop is provided at or near the portion of exit of said inner-surface reflecting type integrator.

**Claim 18. (currently amended):** A device fabrication method comprising the steps of:

projecting a pattern on a mask onto a wafer by using a projection exposure apparatus; and

developing said wafer to which said pattern was transferred,  
wherein said projection exposure apparatus comprising:  
an illumination apparatus for illuminating a mask located on a plane to be illuminated;

and

a projection optical system for projecting a pattern on said mask onto a wafer,  
wherein said illumination apparatus comprising:  
an inner-surface reflecting type integrator including a portion of exit with an n-gonal  
shape where n is a natural number;  
a wave-front splitting type integrator;  
a zoom optical system for arranging a portion of exit of said inner-surface reflecting type  
integrator approximately conjugate with a portion of incidence of said wave-front splitting type  
integrator, and for projecting an image of the portion of exit of said inner-surface reflecting type  
integrator[[,]] onto [[a]] the portion of incidence of said wave-front splitting integrator; and  
an irradiating optical system for superimposing multiple beams from said wave-front  
splitting integrator on a plane to be irradiated, wherein a stop having an approximately circular  
aperture is provided at or near the portion of exit of said inner-surface reflecting type integrator.

**Claim 19. (canceled).**